Name: Date: Period:

**Energy Flows & Cycles**

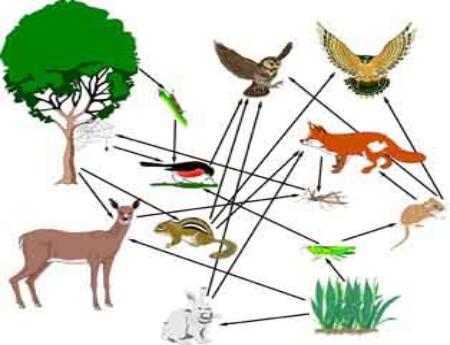
**Food chain** –series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where one organism eats another and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy

**Energy pyramid** – shows amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that moves from one feeding \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to another

**Food Web**  -- flow of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

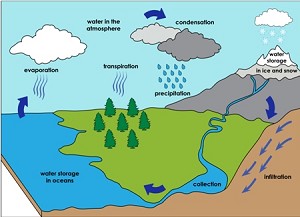
\*\*\*\*\***ARROW POINTS TO WHERE** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Producers** – make their own \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Consumers** – obtains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by feeding on other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Herbivores**  -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eaters
  + **Carnivores** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eaters
  + **Omnivores**  -- eat both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Decomposers** – break down \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and dead \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to return the materials to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



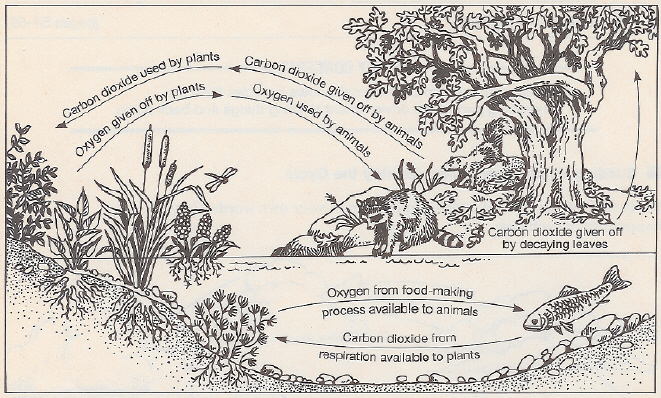
**Water cycle** – continuous \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by which water moves from Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and back

* **Evaporation** – process by which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water molecules \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy and change to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Condensation** – process by which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ( vapor to water drops)
* **Precipitation** – heavy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (rain, snow, sleet, hail) fall back to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Collection** – process by which water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in oceans or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Transpiration** – process by which water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ escapes from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and it enters the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Infiltration** – process where \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water soaks into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and underlying \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



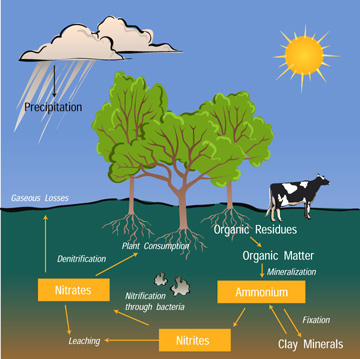
**Carbon and Oxygen Cycles**

* 3 major processes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **photosynthesis** – plants take in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the sun, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ thus releasing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **respiration** – animals take in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ thus releasing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **combustion** – process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; release of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 1 minor process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **decomposition** – when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ matter breaks down \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into all the simple \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ they are made of and these elements are then returned to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Nitrogen Cycle**

* 4 processes in which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ moves from the air to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_, living things, and back into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Nitrogen fixation** – changing \_\_\_\_\_\_\_\_\_\_\_\_ nitrogen into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nitrogen (ammonia)
  + **Decay** – breakdown molecules in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and dead organisms into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Nitrification** -- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ converted into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + **Dentrification** – removes nitrogen from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and passes it through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



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**Energy Flows & Cycles KEY**

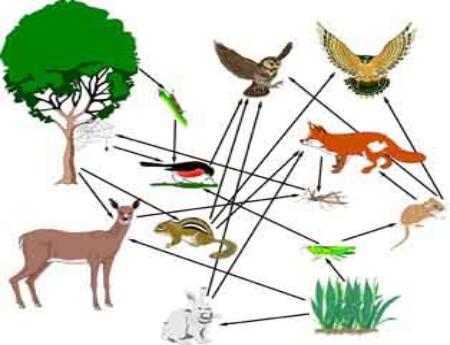
**Food chain** –series of events where one organism eats another and obtains energy

**Energy pyramid** – shows amount of energy that moves from one feeding level to another

**Food Web**  -- flow of energy through an ecosystem

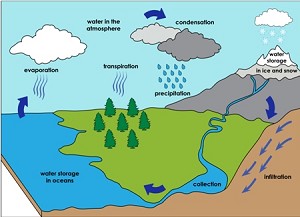
\*\*\*\*\***ARROW POINTS TO WHERE** the energy goes

* **Producers** – make their own food; producers
* **Consumers** – obtains energy by feeding on other organisms
  + **Herbivores**  -- plant eaters
  + **Carnivores** -- meat eaters
  + **Omnivores**  -- eat both plants and meat
* **Decomposers** – break down wastes and dead organisms to return the materials to the ecosystem; bacteria and mushrooms



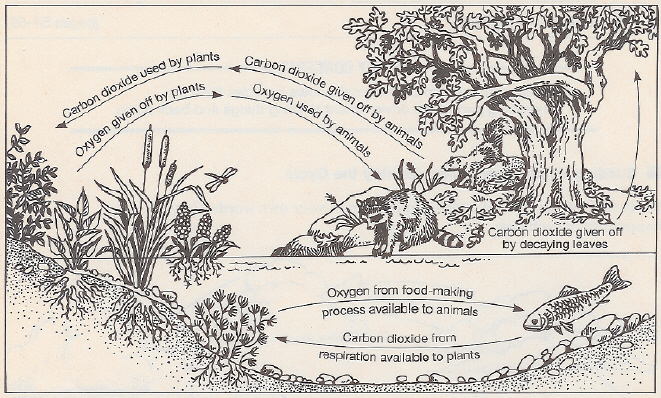
**Water cycle** – continuous process by which water moves from Earth’s surface to the atmosphere and back

* **Evaporation** – process by which liquid water molecules absorb energy and change to a gas
* **Condensation** – process by which gas changes to a liquid (vapor to water drops)
* **Precipitation** – heavy droplets (rain, snow, sleet, hail) fall back to Earth
* **Collection** – process by which water collects in oceans or ground
* **Transpiration** – process by which water vapor escapes from plants and it enters the atmosphere
* **Infiltration** – process where rain water soaks into the ground through the soil and underlying rocks



**Carbon and Oxygen Cycles**

* 3 major processes: photosynthesis, respiration, and combustion
  + **photosynthesis** – plants take in carbon dioxide, energy from the sun, and water thus releasing oxygen, sugar, and water vapor
  + **respiration** – animals take in sugars and oxygen thus releasing carbon dioxide, water, and energy
  + **combustion** – process of burning; release of carbon dioxide
* 1 minor process: decomposition
  + **decomposition** – when organic matter breaks down chemically into all the simple elements they are made of and these elements are then returned to the environment



**Nitrogen Cycle**

* 4 processes in which nitrogen moves from the air to the soil, living things, and back into the air
  + **Nitrogen fixation** – changing free nitrogen into usable nitrogen (ammonia)
  + **Decay** – breakdown molecules in excretions and dead organisms into ammonia
  + **Nitrification** -- ammonia converted into nitrates
  + **Dentrification** – removes nitrogen from atmosphere and passes it through ecosystems

